

m.any

{mosimage cw=180 popup=1 popupTyp=script} m.any displays the concept and prototypical realization of a complete digital workflow from parametric design to production on CNC-machines. An irregular spatial structure generated by algorithms was controlled and manipulated through an especially developed software. In addition to the calculation of the complex geometry, the software also generated necessary parametrical construction elements for the realization. These elements were transferred into code and processed by computer controlled production facilities.

The design concept bases on self-organising principles found in natural phenomena. So called "cellular automata" – cells that follow simple rules reacting on their adjacent cells – grow a geometric mesh. The designer is able to directly interfere with the running design by changing parameters and positions of the structural nodes. A three-dimensional computer simulation model visualizes the design states in real time. The resulting geometrical adapts not only to the user defined parameters but also to contextual elements of the physical space where the structure is placed.

Intertwined with the programming process, construction studies and fabrication systems were developed. Main objective was the use of machines that could be controlled by code - machines like 3-axis mills and laser cutters. Using construction data directly derived from the 3D-model, m.any variations could be explored and tested. The final and realized spatial structure consists out of 1200 individual parts all generated and produced in a seamless digital workflow.

Within three months, the postgraduate students of Computer Aided Design (CAAD) at ETH Zurich, Switzerland, realized m.any as their master thesis. The realized prototype should be regarded as a proof of concept, showing the potential of using current information technologies in architectural design and construction and displaying a seamless digital workflow from design to realization.